

R E M A R K S

By this Amendment claim 1 has been amended to include the features of claims 3 and 12, claims 2, 3, 11 and 15-18 have been deleted, and claims 7 and 8 have been corrected. Entry is requested.

In the outstanding Office Action the examiner has rejected claims 8 and 15-17 under 35 U.S.C. 112, first paragraph, because the specification does not support the claimed subject matter.

By the Amendment these claims have been corrected. In this regard, the corrections are obvious. As seen in Table 2 of the present application (page 17), the ratio of 8-PN versus 8-PN+6-PN is provided. An amount of 0.17 8-PN and an amount of 0.58 6-PN provides a ratio of 0.23 or 23% (8-PN/8-PN+6-PN or $0.17/(0.17+0.58) = 0.23$). Thus, the formula in claim 8 (and in the specification¹) is obviously incorrect. The "x100%" is not correct and should be deleted. The phrase "at least 50%" should be "at least 0.5." This is obvious from the disclosure.

With respect to claim 7, the phrase "at least 10" should obviously be "at least 10:1." Note page 10, lines 10-12 and page 17, lines 20-22 of the specification.

The examiner's formality rejections should now be withdrawn.

¹ The applicants offer to file a substitute specification with related corrections.

The examiner has rejected claims 1, 2, 4-12 and 14-17 under 35 U.S.C. 102(b) as being anticipated by WO 03/014287 (Erdelmeier et al.²), he has rejected claims 1, 2, 10, 11 and 14 under 35 U.S.C. 102(b) as being anticipated by JP 75010399, and he has rejected claims 1-17 under 35 U.S.C. 103(a) as being unpatentable over Erdelmeier et al. in view of "applicant's admission" on page 7 or JP 75010399, further in view of Moll et al.

These rejections are incorrect.

Erdelmeier et al. disclose a method for obtaining an extract from hop wherein a drug from hop is extracted with a C₅-C₇ alkane or supercritical CO₂ and the drug residue separated from the solution, the drug residue is extracted one or more times with water, the separated drug residue is extracted one or more times with 80-96% ethanol and the extraction solution filtered, and the solvent removed and the remaining residue dried. No base is employed.

The present invention does not include an extraction with ethanol, but includes use of a base.

Although Erdelmeier discloses a method wherein 6-PN and 8-PN are obtained, the temperature of the pre-extraction in water influences the yield of hop oestrogens as indicated in paragraph 16 and 17.

² See counterpart U.S. Application Publication 2005/0042318.

"The fact that the content of 6- and 8-prenylnaringenine depends on the temperature of the pre extraction with water (cf. Example 3) and that it can be enhanced by a factor of up to about 2 is particularly surprising. [0017] FIG. 1 demonstrates the dependence of the concentration of the analyzed ingredients on the temperature of the preextraction with water [i.e. 60-95°C]."

And in paragraph 47:

[0047] The results being graphically represented in FIG. 1 exhibit a significant dependence of the concentration of the analyzed prenylated ingredients on the temperature of the preextraction using water.

While the absolute amounts of 8-PN and 6-PN are increased in Erdelmeier, the ratio of 8-PN/(8-PN+6-PN) is not dramatically changed as indicated below.

	8-PN	6-PN	8-PN+6-PN	8-PN/(8-PN-6-PN)
Comp. example	Not detectable	Not detectable		
Example 1a	0.21	0.42	0.63	0.25
Example 1b	0.15	0.49	0.64	0.23
Example 2	0.09	0.4	0.49	0.18
Example 3				

The amount of 6-PN remains about constant whereas the amount of 8-PN doubles. The ratio of 8-PN in the sum of 6-PN + 8-PN merely increases from 0.18 to 0.25.

Figure 1 shows no numeric data but it clear that there is more 6-PN than 8-PN, and that consequently the ratio $8\text{-PN} / (8\text{-PN} + 6\text{-PN})$ is well below 50%.

In summary, although the preextraction increases the total amount of hop extract, the degree of isomerization between 6-PN and 8-P is not dramatically changed.

Erdelmeier illustrates that improvements in an aqueous pre-extraction method are possible, but does not disclose or suggest that the conversion step itself can be improved.

The claimed invention however illustrates that modifications of the conversion process leads to a shift of the isomerisation reaction from 6-PN to 8-PN, which latter compound has the desired oestrogenic activity. The problem to be solved in Erdelmeier is how to increase the relative amount of 8-PN towards 6-PN.

The examiner submits that: "Thus, making it clear that it would have been obvious for one of ordinary skill in the art to use KOH in the isomerization reaction of Erdelmeier since JP makes it clear that when hops are subjected to isomerization reactions, KOH is well known to be used."

JP '399 discloses a reaction in alkaline aqueous conditions at boiling temperature. The precise alkali concentration is unknown since the cited range "0,02 – 0,02" is clearly wrong.

The disclosure of JP '399 differs from the claimed invention in a dramatic change in temperature.

JP '399 refers to the conversion of hop alpha acids such as humulone, adhumulone, cohumulone, posthumulone, and prehumulone into their iso-acids. To obtain this conversion a prolonged boiling is required. JP '399 does not comment on the conversion of prenylnaringenins, and it is therefor not obvious for one of ordinary skill in the art to use the method and conditions of JP '399, wherein iso-acids are prepared, into the method of Erdelmeier wherein prenylnaringenins are prepared. It is submitted that it is not obvious to apply the conditions of one isomerization process (hop alpha acids) to another isomerisation process (chalcones).

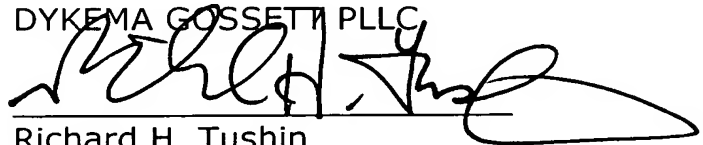
Assuming that the method of JP '399 was applied to the method of Erdelmeier et al., three parameters have to be changed in Erdelmeier et al. to arrive at the claimed invention, namely the addition of a base, the removal of ethanol and the reduction in temperature from 100°C to between room temperature and 60°C. These changes would not be obvious to a person of ordinary skill in this art.

The examiner's prior art rejections based on Erdelmeier et al. and
JP '399 should be withdrawn.

Respectfully submitted,

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